

Listing of Claims

Please amend the claims as follows:

1. (Currently Amended) A method for welding a member and an end of a polygonal hollow section (PHS) to a member to form a joint, the method comprising;
forming a connection weld connecting the end of the PHS and the member; and
forming a second weld by applying a plurality of weld beads transversely across
a surface of the PHS, the second weld extending continuously across along the surface of
the PHS from a the connection weld connecting the PHS and the member to a location
that is remote from the connection weld such that, when a bending moment is applied to
the joint, a greatest longitudinal normal strain occurs adjacent the remote location.
2. (Currently Amended) A method as claimed in claim 1, wherein the surface comprises
one or more flanges of the polygonal hollow section (PHS) is one or more flanges of the
PHS.
3. (Currently Amended) A method as claimed in claim 2, wherein the polygonal hollow section (PHS) is at least one of a rectangular hollow section (RHS) or and a square hollow section (SHS), and the surface is a single flange of the PHS part of just one
flange.
4. (Currently Amended) A method as claimed in claim 2, wherein the weld that extends
continuously is applied to the surface comprises at least one a tensile flange or flanges of
the polygonal hollow section (PHS).
5. (Cancelled).

6. (Currently Amended) A method as claimed in claim 1, wherein the step of forming the connection weld that extends continuously comprises the steps of:

applying the at least one connection weld bead across an edge of a flange of the polygonal hollow section (PHS) at the end thereof to connect the PHS to the member;
and

wherein forming the second weld comprises:

applying a spaced weld bead transversely across the flange, wherein the spaced weld bead that is spaced from a the connection weld bead; and

applying one or more intermediate weld bead[[s]] to the flange so as to define the weld that extend[[s]] the second weld continuously between the connection weld bead and the spaced weld bead.

7. (Currently Amended) A method as claimed in claim 6, wherein the polygonal hollow section (PHS) is at least one of a rectangular hollow section (RHS) or and a square hollow section (SHS), and one the flange defines is a tensile flange, such that and the spaced and intermediate weld beads are transversely applied only across the tensile flange.

8. (Currently Amended) A method as claimed in claim 6, wherein a first intermediate weld bead is applied to the flange adjacent to the spaced weld bead and each successive intermediate weld bead is applied adjacent a previous intermediate weld bead so as to extend the second weld continuously between the spaced weld bead and the connection weld bead the weld beads are applied in either a backward or forward bead deposit sequence; wherein in the forward bead deposit sequence one or more successive intermediate weld beads are applied to the flange, starting adjacent to the connection weld bead, to then progressively define the weld that extends continuously, with the final weld bead then constituting the spaced weld bead; and wherein in the backward bead deposit sequence, before or after applying the connection weld bead, the a spaced weld bead is applied, and one or more successive intermediate weld beads are then applied, starting from adjacent to the spaced weld bead and progressing until the connection weld bead is reached, thereby defining the weld that extends continuously.

9. (Currently Amended) A method as claimed in claim 8, wherein the polygonal hollow section (PHS) is at least one of ~~when used to connect~~ a rectangular hollow section (RHS) or and a square hollow section (SHS) ~~to the member, and~~

wherein, after forming a the connection weld between the RHS/SHS PHS and the member, the spaced weld bead is applied, and then two or more intermediate weld beads are applied in succession between the spaced weld bead and the connection weld, starting with a the first intermediate weld bead adjacent to the spaced weld bead.

10. (Currently Amended) A method as claimed in claim 6₁ wherein an additional weld bead is applied in a region defined between the member, the connection weld and the intermediate weld bead immediately adjacent to the connection weld.

11. (Currently Amended) A method as claimed in claim 10₁, wherein the flange has a flange thickness and the additional weld bead has a thickness that is at least 0.5 times the flange thickness.

12. (Currently Amended) A method as claimed in claim 6₁ wherein the connection weld is ~~applied formed as one or more bead passes right~~ around a peripheral end of the polygonal hollow section (PHS) to fully connect ~~that~~ the end to the member.

13. (Currently Amended) A method as claimed in claim 6₁ wherein the ~~combined weld beads have~~ second weld has a width ranging from 10 to 30 mm.

14. (Currently Amended) A method as claimed in claim 6₁ wherein the flange has a flange thickness and the one or more intermediate weld beads each have a thickness that is in the range of 0.3 to 0.6 times the ~~adjacent~~ flange thickness.

15. (Currently Amended) A method as claimed in claim 1₁, wherein the member is at least one of another polygonal hollow section (PHS), a supporting plate, a stiffening plate, a connecting plate, a base plate ~~or~~ and a top plate.

16. (Currently Amended) A method as claimed in claim 1, wherein the polygonal hollow section (PHS) and the member define a the joint about which a the bending moment can be applied, as a result of a load applied to at least one of the PHS, or to the member, or and both the PHS and the member.

17. (Currently Amended) A method for increasing the rotation capacity in a welded moment connection between a polygonal hollow section (PHS) and a member, the method comprising:

applying multiple weld beads transversely across a surface of the PHS forming a weld between the PHS and the member in a manner such that strain in at least one corner(s) of the PHS, located at an end of the PHS that is weld connected to the member, is redistributed to an adjacent flange that is adjacent to the at least one corner of the PHS.

18. (Currently Amended) A method for increasing the rotation capacity in a welded moment connection between a polygonal hollow section (PHS) and a member, the method comprising:

applying multiple weld beads transversely across a surface of the PHS forming a weld between the PHS and the member in a manner that minimises the extent to which a heat effected zone through a flange of the PHS lies in a fracture zone adjacent to the weld.

19. (Currently Amended) A method as claimed defined in claim 1, wherein that is applied to the polygonal hollow section (PHS) is formed from steel having reduced elongation at fracture when compared to a corresponding hot-formed steel section.

20. (Currently Amended) A method as claimed in claim 19, wherein the steel is cold-formed and is susceptible to fracture in a heat affected zone adjacent to where the polygonal hollow section (PHS) is joined to the member.

21. (New) A method as claimed in claim 6, wherein a first intermediate weld bead is applied to the flange adjacent to the connection weld bead and each successive intermediate weld bead is applied adjacent a previous intermediate weld bead so as to extend the second weld continuously between the connection weld bead and a final intermediate weld bead, the final intermediate weld bead constituting the spaced weld bead.